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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
JERABEK, KELLY L	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/663,338	GFELLER, KARL	
	Examiner	Art Unit	
	Kelly L. Jerabek	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/15/2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 15-35 have been considered but are moot in view of the new ground(s) of rejection.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Objections

Claim 15 objected to because of the following informalities: "device being operating" should read "device operating". "in said predetermined direction by a link" should read "in said preselected direction by a link". "reference system movably at at least three articulate areas" should read "reference system movable in at least three articulate areas". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15, 17/15, 19/15-20/15, 22, 25/22, 27/22, and 29/22-32/22, and 33-35 rejected under 35 U.S.C. 102(b) as being anticipated by Itsumi et al. US 5,101,278.

Re claim 15, Itsumi discloses in figure 1 a video camera capable of automatic focusing control including a motion transmission mechanism (50). It can be seen in figure 4A that the motion transmission mechanism (50) guides the linear movement of an image pickup element (20) in a preselected direction. Figure 4A also shows that two link mechanisms consisting of a pivotal arm (51) and connection arms (52,53) are used to connect the image pickup element (20) in the imaging beam of the camera with a relay lens group (14) (col. 5, lines 8-30). The Examiner is reading the relay lens group (14) as a reference system of the camera. Therefore, the image pickup element is being driven in the imaging beam of a camera and with respect to a reference system (relay lens group) of a camera. Figure 4A also shows that the link mechanisms consisting of a pivotal arm (51) and connection arms (52,53) are used to link the image

pickup element (20) to the relay lens group (14). Also there are 4 rods that connect the different parts of the link mechanism. These 4 rods can be seen in figure 4A and they are as follows: the rod linking holding means (56) and connection arm (53), the rod linking connection arm (53) and pivotal arm (51), the rod linking pivotal arm (51) and connection arm (52), and the rod linking connection arm (52) and holding means (55). The 4 rods are parallel with each other and are perpendicular to the direction of movement of the relay lens group (14) and the image pickup element (20). Thus, these 4 rods show that the link of the image pickup element (20) to the reference system (relay lens group 14) is movable at three articulate areas (rods) having articulate axes which are mutually parallel and are perperpendicular to the preselected direction.

Re claim 17/15, the image pickup device (20) disclosed by Itsumi is a CCD (col. 3, lines 40-44). Thus the device (20) is operating in the imaging beam of a digital camera.

Re claim 19/15, the image pickup device (20) disclosed by Itsumi is a CCD (col. 3, lines 40-44). It is well known that CCDs include an array of optoelectric transducers.

Re claim 20/15, see claim 19.

Re claim 22, see claim 15.

Re claim 25/22, see claim 22. The 4 rods of figure 4A are being read as three articulate areas (rods) having articulate axes that are mutually parallel, mutually spaced and parallel to the plane. The rods are part of a motion transmission mechanism (50) used to connect an image pickup device (20) to a relay lens group (14) (col. 5, lines 8-18). Thus, since the 4 rods are parts of the motion transmission mechanism (50) as shown in figures 4A and 4B it can be seen that the rods must be small and thin in order to be a component of a standard video camera. Therefore, the Examiner is reading the 4 rods as articulate axes of a thin layer hinge since the rods are relatively thin and they are used as hinges in order to allow the pivotal arm (51) and the connection arms (52,53) to be pivotally mounted to one another (col. 5, lines 8-18).

Re claim 27/22, Itsumi states that the image pickup element (20) is moved by a piezoelectric element (30) (col. 5, lines 27-32).

Re claim 29/22, the motion transmission mechanism (50) includes all of the limitations of claim 22. According to the dictionary, a module is a packaged functional assembly of electronic components for use with other such assemblies. Therefore, the Examiner is reading the motion transmission mechanism (50) as a module. The motion transmission mechanism (50) is also being treated as being of one piece.

Re claim 30/22, see claim 29.

Re claim 31/22, see claim 19.

Re claim 32/22, see claim 20.

Re claim 33, Itsumi discloses in figure 1 a video camera capable of automatic focusing control including a motion transmission mechanism (50). It can be seen in figure 4A that the motion transmission mechanism (50) guides the linear movement of a device (holding means 55 of an image sensor (20)) and a holding means (56) of a relay lens group (14) in a preselected direction. Figure 4A also shows the construction of the motion transmission mechanism (50) including two link mechanisms consisting of a pivotal arm (51) and connection arms (52,53) that are used to connect the image pickup element (20) in the imaging beam of the camera with a relay lens group (14) (col. 5, lines 8-30). Also there are 4 rods that connect the different parts of the link mechanism. These 4 rods can be seen in figure 4A and they are as follows: the rod linking holding means (56) and connection arm (53), the rod linking connection arm (53) and pivotal arm (51), the rod linking pivotal arm (51) and connection arm (52), and the rod linking connection arm (52) and holding means (55). The 4 rods are parallel with each other and are perpendicular to the direction of movement of the relay lens group (14) and the image pickup element (20). Each of the 4 rods is being read as a hinge because they are at the ends of each of the arms (51,52,53) and the arms rotate around them. Therefore, the Examiner is reading the reference on the claim in the following way: Itsumi discloses in figures 1 and 4A an apparatus (motion transmission mechanism 50)

that is mounted to a camera. The motion transmission mechanism (50) includes a device (holding means (55)) that extends in a plane. The motion transmission mechanism (50) also includes a first hinge (the rod linking connection arm (52) and holding means (55)), and a first transfer lever (52) having first and second ends. The first end of the first transfer lever (52) is connected to the first hinge (the rod linking connection arm (52) and holding means (55)) so that it can be rotated around the hinge and the second end of the first transfer lever (52) is connected to a second hinge (the rod linking pivotal arm (51) and connection arm (52)) so that it can be rotated around the hinge. Additionally, it can be seen in figure 4A that the first hinge (the rod linking connection arm (52) and holding means (55)) and the second hinge (the rod linking pivotal arm (51) and connection arm (52)) are parallel to one another. The motion transmission mechanism (50) also includes a second transfer lever (51) having first and second ends, the first end of the second transfer lever (51) is connected to a second hinge (the rod linking pivotal arm (51) and connection arm (52)) so that it can be rotated around the hinge and the second end of the second transfer lever (51) is connected to a third hinge (the rod linking pivotal arm (51) and connection arm (53)) so that it can be rotated around the hinge. It can be seen in figure 4A that the first, second, and third hinges are all parallel. Additionally, the third hinge (the rod linking pivotal arm (51) and connection arm (53)) is part of the transmission mechanism (50) which is part of a camera. Thus, this information can be used to show that the third hinge is mountable to a camera so that the device (holding means (55) of an image sensor (20)) can be

moved a limited distance in parallel with the imaginary plane of the holding means (55)(fig. 4A).

Re claim 34, the image pickup device (20) disclosed by Itsumi is a CCD (col. 3, lines 40-44). It is well known that CCDs include an array of optoelectric transducers.

Re claim 35, it can be seen in figure 4A that the device (holding means 55) is rectangular and the first, second, and third hinges extend in planes parallel to the imaginary plane of the device (holding means 55).

Claims 22-23, 26/22, and 26/23 rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka US 4,894,672.

Re claim 22, Tanaka discloses in figure 1 a lens shutter type camera. The camera includes a pantograph linkage (40) consisting of four links (41,42,43,44). The pantograph linkage (40) connects a camera housing (12) and a lens barrel (20) so that when the pantograph linkage (40) extends or contracts in the optical axis the lens barrel is driven (col. 3, lines 48-68; fig. 1). It can be seen in figure 1 that the four pivot shafts (45a,45b,46a,46b) of the pantograph linkage (40) are parallel to one another they also lie in the same plane as the lens barrel (20). Therefore, figure 1 discloses a guiding arrangement for a linear movement of a device (lens barrel 20) comprising a link (pantograph arrangement 40) between the device (20) and a reference system (camera

housing 12) exclusively movable about articulate axes (45a,45b,46a,46b) that are parallel to one another and parallel to the plane.

Re claim 23, Tanaka further discloses in figure 1 a further link (pantograph linkage 50) consisting of four links (51,52,53,54). The pantograph linkage (50) connects the camera housing (12) and the lens barrel (20) (col. 4, lines 52-68; fig. 1). It can be seen in figure 1 that the four pivot shafts (55a,55b,56a,56b) of the pantograph linkage (50) are parallel to one another they also lie in the same plane as the lens barrel (20). Also, it can be seen in figure 1 that pivot shafts (55a,55b,56a,56b) of pantograph linkage (50) lie on the top of the camera housing (12) and the lens barrel (20) while pivot shafts (45a,45b,46a,46b) lie on the side of the camera housing (12) and the lens barrel (20). Thus, the further articulate axes (55a,55b,56a,56b) of the further link (pantograph linkage 50) are at an angle (90 degrees) to the articulate axes (45a,45b,46a,46b) of the link (pantograph linkage 40).

Re claim 26/22 and 26/23, both the link (40) and the further link (50) disclosed by Tanaka are pantograph links.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16, 17/16-21/16, 23, 24/23-25/23, 27/23, and 29/23-32/23 rejected under 35 U.S.C. 103(a) as being unpatentable over Itsumi et al. US 5,101,278 in view of Shoshan et al. US 6,670,986.

Re claim 16, Itsumi discloses all of the limitations of claim 15 including a link of a device to a reference system movably at three articulate areas having articulate axes that are mutually perpendicular. However, Itsumi only mentions that the device can be moved in the direction of one plane (ex. x-axis). It can be seen in figure 4 that the direction of movement of the device is always perpendicular to the plane of the rods connecting the links (51,52,53). Therefore, it can be seen that depending on the direction of movement the plane of the rods connecting the links (51,52,53) will change. Thus, the movement of the device in a direction perpendicular to the direction shown in figure 4A would require that the axes of the rods connecting the links (51,52,53) be perpendicular to the axes shown in figure 4a. However, Itsumi fails to state that the device is guided additionally in a direction perpendicular to the preselected direction.

Shoshan discloses in figure 4 an x-y movement apparatus (20) capable of moving a CCD sensor (15) in both an x and a y direction (col. 4, lines 46-67). An actuator (38) is moved either backwards or forwards in order to move the CCD plate

(24) in the X-direction or the Y-direction (col. 5, lines 54-67). Therefore, it would have been obvious for one skilled in the art to have been motivated to include the teaching of moving a CCD sensor (15) in directions that are perpendicular to one another as disclosed by Shoshan in the camera disclosed by Itsumi. Doing so would provide a means for moving a CCD sensor in the X-Y directions (Shoshan: col. 2, lines 30-32).

Re claim 17/16, the image pickup device (20) disclosed by Itsumi is a CCD (col. 3, lines 40-44). Thus the device (20) is operating in the imaging beam of a digital camera.

Re claim 18/16, Shoshan discloses in figure 4 an X-Y movement apparatus for the movement of a CCD (15) of a digital camera (col. 4, lines 45-67). Shoshan further states that present day still cameras utilized a fixed CCD sensor (col. 2, lines 6-15). Therefore, it can be seen that the X-Y movement apparatus disclosed by Shoshan moves a CCD sensor in order to overcome the limitations and disadvantages of the digital still cameras of the prior art (col. 2, lines 30-32).

Re claim 19/16, the image pickup device (20) disclosed by Itsumi is a CCD (col. 3, lines 40-44). It is well known that CCDs include an array of optoelectric transducers.

Re claim 20/16, see claim 19.

Re claim 21/16, Shoshan states that after a first capture the CCD is moves a distance of one CCD cell in the x-direction and a second capture is taken, after the second capture the CCD is moved back to its original position and in a third stage the CCD is moved a distance of one CCD cell in the y-direction and a third capture is taken (col. 6, lines 20-50). Therefore, it can be seen that the guiding disclosed by Shoshan is performed during a multi-shot operation.

Re claim 23, see claim 16.

Re claim 24/23, see claim 16.

Re claim 25/23, the 4 rods of figure 4A are being read as three articulate areas (rods) having articulate axes that are mutually parallel, mutually spaced and parallel to the plane. The rods are part of a motion transmission mechanism (50) used to connect an image pickup device (20) to a relay lens group (14) (col. 5, lines 8-18). Thus, since the 4 rods are parts of the motion transmission mechanism (50) as shown in figures 4A and 4B it can be seen that the rods must be small and thin in order to be a component of a standard video camera. Therefore, the Examiner is reading the 4 rods as articulate axes of a thin layer hinge since the rods are relatively thin and they are used as hinges in order to allow the pivotal arm (51) and the connection arms (52,53) to be pivotally mounted to one another (col. 5, lines 8-18).

Re claim 27/23, Itsumi states that the image pickup element (20) is moved by a piezoelectric element (30) (col. 5, lines 27-32).

Re claim 29/23, the motion transmission mechanism (50) disclosed by Itsumi includes all of the limitations of claim 22. According to the dictionary, a module is a packaged functional assembly of electronic components for use with other such assemblies. Therefore, the Examiner is reading the motion transmission mechanism (50) as a module. The motioin transmission mechanism (50) is also being treated as being of one piece.

Re claim 30/23, see claim 29.

Re claim 31/23, see claim 19.

Re claim 32/23, see claim 20.

Claim 28/22 and 28/23 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Itsumi et. al.

Re claim 28/22 and 28/23, Tanaka discloses all of the limitations of claims 22 and 23. Additionally, Tanaka states that a motor (fig. 3: m) is connected via a pantograph (40) to the device (lens barrel 20) in order to move the device (lens barrel

20) in the optical axis (col. 4, lines 9-12). However, Tanaka does not state that the motor is a piezo drive element.

Itsumi discloses in figure 1 a video camera capable of automatic focusing control including a motion transmission mechanism (50). It can be seen in figure 4A that the motion transmission mechanism (50) guides the linear movement of a relay lens group (14) in a preselected direction when a piezoelectric actuator (30) moves an image pickup element (20). Figure 4A also shows that two link mechanisms consisting of a pivotal arm (51) and connection arms (52,53) are used to connect the piezoelectric actuator (30) with a relay lens group (14) (col. 5, lines 8-30). Therefore, it would have been obvious to include the piezoelectric actuator (30) capable of driving the motion transmission mechanism (50) in the camera including a motor for driving a pantograph link disclosed by Tanaka. Doing so would provide a means for moving a device in an optical axis of a camera using a piezoelectric actuator (Itsumi: col. 5, lines 28-32).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is 703-305-8659. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for submitting all Official communications is 703-872-9306. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at 703-746-3059.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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